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under the formula  $x\text{RO} \cdot y\text{MnO}_2 \cdot z\text{H}_2\text{O}$ , of which the cobalt bearing variety, asbolite, has an important economic value as a cobalt ore. Rancieite is a calcium-bearing variety of psilomelane. Under anhydrous sulphates and chromates are descriptions of mascagnite, thenardite and metathenardite, which is the name given to a polymorphic form of  $\text{Na}_2\text{SO}_4$ , stable above  $235^\circ$  and differing in its crystalline and optical properties from thenardite. It was found at a secondary fumarole (temp.  $500\text{--}590^\circ$ ) of Mt. Pelée and had evidently formed from fusion. There are then described glauberite, anhydrite, the barite group with many photographs and crystal drawings, the alunite group in which an occurrence of natroalunite from Martinique may be noted, lanarkite, brochantite and linarite. Caledonite and leadhillite are the two sulfates with carbonates. The list of hydrous sulphates is an extensive one and includes mirabilite, gypsum (nearly 50 pages) and most of the vitriols, namely, epsomite, goslarite, morenosite, melanterite, pisanite, boothite, bieberite and chalcantite. Further alunogen, connellite, coquimbite, fibroferrite, aluminite with which felsöbanyite and paraluminite may be identical, being only aluminite in a somewhat altered condition. Apatélite ( $\text{Fe, Al}$ ),  $(\text{OH})_4 \cdot \text{SO}_4 + \text{H}_2\text{O}$  is a definite mineral species, its composition as here given being deduced from a new analysis of original material, the results obtained differing very much from the original analysis.<sup>1</sup> The remaining sulphates described are copiapite, glockerite, polyhalite, kalinite, halotrichite, pickeringite, metavoltite, roemerite, botryogen and cyanotrichite. Of the molybdates and tungstates there are wulfenite, scheelite and the wolframite group composed of ferberite  $\text{FeWO}_4$ , wolframite  $(\text{Fe, Mn})\text{WO}_4$  and hübnerite  $\text{MnWO}_4$ , though Lacroix states that the analyses of ferberite show an excess of  $\text{FeO}$ . Molybdite from Corsica showed qualitatively the presence of iron and water. The aluminates, ferrites, chrom-

<sup>1</sup>The composition of this and several related minerals badly needs revision. From the data now at hand, apatélite, raimondite, cyprussite and possibly several others are probably identical (W. T. S.).

ites comprise the spinel group, the various members of which (spinel, hercynite, chromite, magnetite, etc.) are fully described and illustrated, and the orthorhombic chrysoberyl. Only three borates are given, hambergite and rhodizite from Madagascar and ulexite. Nadorite,  $\text{PbO} \cdot \text{SbOCl}$ , from Algiers and the probable occurrence of romeite,  $\text{CaSb}_2\text{O}_6$ , therewith, are the two antimonites which finish the volume. The descriptions of the different minerals are given as in the former volumes and the paragraphs on the occurrences and associations are very full and contain much interesting information. The volume is richly illustrated with photographs and with crystal drawings.

WALDEMAR T. SCHALLER

#### SCIENTIFIC JOURNALS AND ARTICLES

*The Journal of Biological Chemistry*, Vol. VIII., No. 3, issued September 15, contains the following: "Some Peculiarities of the Proteolytic Activity of Papaïn," by Lafayette B. Mendel and Alice F. Blood. A detailed study of the behavior of papaïn with especial reference to the accelerating effect which  $\text{HCN}$  exerts upon its action. "The Erepsin of the Cabbage (*Brassica oleracea*)," by Alice F. Blood. A typical vegetable erepsin can be prepared from white cabbage. "A Method for Determination of Saccharine in Urine," by W. R. Bloor. Evaporated urine is acidified and extracted with benzol. Saccharine is determined colorimetrically in the benzol extract by transforming it into a colored substance, probably phenol-sulphonephthaleïn or sulphurein. This is effected by heating with phenol-sulphuric acid. "Estimation of Saccharine in Urine and Feces," by Alfred J. Wakeman. A modification of Bloor's method. "Manganese of the Tissues of Lower Animals," by H. C. Bradley. Data from numerous analyses indicate that manganese is a normal constituent of the fresh-water mussels of North America. "Some Lipase Reactions," by H. C. Bradley. Experiments performed with human pancreatic juice show that the hydrolysis of triolein is regularly increased by increased amount of lipase; that a given

amount of lipase can hydrolyze a definite amount of triolein, irrespective of the mass of the latter; that reversion occurs in only negligible amounts when water is present. It is suggested that lipase may not be an important factor in the synthesis and storage of fats in the cell. "Behavior of Molds toward the Stereo-isomers of Unsaturated Dibasic Acids," by Arthur W. Dox. Comparisons of growth of various molds in media containing fumaric, maleic, mesaconic, citraconic and itaconic acids.

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#### NOTES ON METEOROLOGY AND CLIMATOLOGY

OWING to the fact that the horizontal component of falling snow is frequently greater than the vertical, the catchment of the true amount of snow falling at any place has always been a problem of great practical difficulty. The complex whirls and eddies set up by the wind over the ordinary precipitation gauge do not allow the proper amount of snow to fall into the cylinder. For this reason it has frequently been the practise to cut out a cylinder of snow from an open place where the snow lies at an average depth, and convert this into the water equivalent. The increased use of water for irrigation and power purposes in the western part of the United States has resulted in a demand for a more thorough knowledge of the proper manner of measuring rainfall. Some time ago the United States Weather Bureau appointed Professor F. H. Bigelow to supervise a study of the problem. The first report of progress in this investigation has just been published. It consists largely of a summary of the results obtained from a number of stations in thirteen western states, all of which were equipped with similar apparatus. It contains the conclusion, "that it is not proper to give further consideration to any plan of constructing a seasonal snow or rain gauge that depends upon a pipe having a small diameter, such as the usual Weather Bureau rain gauge, the ten-inch standpipe, and the numerous automatic devices fitted with similar pipes for the catchment. . . . We infer that all the stations

of the Weather Bureau should be equipped with snow bins, and that the rain gauges should be placed inside, the open top being within a few inches of the floor of the bin." The bin giving the best results thus far consists of a five-foot cubical box, open at the top, with its floor five feet above the ground. It also has inside and outside louver screens which prevent the formation of eddies. This much of the problem having been solved, it is probable that the experiments will be continued with the hope of constructing a seasonal reservoir for remote places where access is only occasionally possible.

IN the latest number of the *Monthly Weather Review*, the June number, Professor A. G. McAdie, section director of the United States Weather Bureau at San Francisco, calls attention to some interesting facts in connection with the snowfall at Summit, Cal., the elevation of which is 7,017 feet. A table is published showing the seasonal snowfall for the past forty years, constituting one of the longest periods of snowfall observations in the country. The average annual snowfall for this period is 422.6 inches (35.2 feet), and the maximum for any one winter being that of 1879-80, when it was 783 inches (65.3 feet). Using a similar table as a basis, Professor J. N. LeConte has drawn a curve to show the average rate of melting and the relation between this and travel possibilities. The actual curve of melting for any year may be compared with the mean curve, and if it falls below the mean for the most part, the season will probably be a dry one, and travel in the mountains will be possible at a much earlier date than during a year when the actual curve of melting rises above the mean.

THE British Meteorological Office has just issued a volume called "The Trade Winds of the Atlantic Ocean," consisting of three contributions to the study of the northeast and southeast trade winds. As stated in the preface, five years ago Dr. W. N. Shaw called attention to "the analogy between the seasonal variation of the trade wind and that of the rainfall of the south of England," and "added